



## REL Appalachia Ask-A-REL Response

Behavior and Mental Health, Data Use, Family and Community Engagement  
October 2017

### Question:

What does the research say about the cost-effectiveness or cost-benefit of nonacademic supports provided in schools, including services or programs focused on family engagement, health, chronic absenteeism, discipline/behavior, and school climate/culture?

### Response:

Thank you for your request to our REL Reference Desk regarding evidence-based information about the cost-effectiveness and cost-benefit of nonacademic supports in schools. Ask-A-REL is a collaborative reference desk service provided by the 10 Regional Educational Laboratories (RELs) that, by design, functions much in the same way as a technical reference library. Ask-A-REL provides references, referrals, and brief responses in the form of citations in response to questions about available education research.

Following an established REL Appalachia research protocol, we searched for research reports and descriptive study articles on the cost-effectiveness and cost-benefit of nonacademic supports in schools. We focused on identifying resources that specifically presented findings from cost-effectiveness analysis or cost-benefit analysis on non-academic supports (for example, family engagement, health, discipline/behavior, and school climate/culture). The sources included ERIC and other federally funded databases and organizations, research institutions, academic research databases, and general Internet search engines. For more details, please see the methods section at the end of this document.

The research team did not evaluate the quality of the resources provided in this response; we offer them only for your reference. Also, the search included the most commonly used research databases and search engines to produce the references presented here, but the references are not necessarily comprehensive, and other relevant references and resources may exist.

### References

Belfield, C., Bowden, A. B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). The economic value of social and emotional learning. *Journal of Benefit-Cost Analysis*, 6(3), 508–544.

Retrieved from

[https://www.researchgate.net/profile/Alli\\_Klapp/publication/270574959\\_The\\_economic\\_value\\_of\\_social\\_and\\_emotional\\_learning/links/54ae50fd0cf24aca1c6f93d2.pdf](https://www.researchgate.net/profile/Alli_Klapp/publication/270574959_The_economic_value_of_social_and_emotional_learning/links/54ae50fd0cf24aca1c6f93d2.pdf)

*From the abstract:* “In this Report, we review the available evidence on the economic value of Social and Emotional Learning (SEL). We also set down a formal method to perform

economic valuations with respect to changes in Social and Emotional (SE) skills. Our main contribution is to perform BC [benefit-cost] analysis of six prominent SE interventions:

- 4Rs;
- Positive Action;
- Life Skills Training;
- Second Step;
- Responsive Classroom; and
- Social and Emotional Training (Sweden).

These interventions were chosen because they are prominent in the literature and provide diversity in terms of their goals, measures of outcomes, and student populations. For each intervention we have constructed tables of ingredients and their costs; alongside, we have created benefit maps to summarize the possible benefits each intervention might confer and calculated the monetary value of these benefits (as far as possible). We have then computed appropriate economic metrics—benefit-cost ratios and net present values—and performed sensitivity testing to see if the results are robust to alternative specifications.

The most important empirical finding is that all six interventions for improving SEL show benefits that exceed the costs, often by considerable amounts. There is a positive return on investments for all of these educational reforms on social and emotional learning. These findings are robust to the imposition of different assumptions on the sources and construction of benefits and costs.”

Blonigen, B. A., Harbaugh, W. T., Singell, L. D., Horner, R. H., Irvin, L. K., & Smolkowski, K. S. (2008). Application of economic analysis to school-wide positive behavior support (SWPBS) programs. *Journal of Positive Behavior Interventions*, 10(1), 5–19. Retrieved from [https://www.researchgate.net/profile/Keith\\_Smolkowski/publication/22401BJ“Vppliation\\_of\\_Economic\\_Analysis\\_to\\_School-Wide\\_Positive\\_Behavior\\_Support\\_SWPBS\\_Programs/links/5691704008aee91f69a51dd8.pdf](https://www.researchgate.net/profile/Keith_Smolkowski/publication/22401BJ“Vppliation_of_Economic_Analysis_to_School-Wide_Positive_Behavior_Support_SWPBS_Programs/links/5691704008aee91f69a51dd8.pdf)

*From the abstract:* “The authors discuss how to use economic techniques to evaluate educational programs and show how to apply basic cost analysis to implementation of school-wide positive behavior support (SWPBS). A description of cost analysis concepts used for economic program evaluation is provided, emphasizing the suitability of these concepts for evaluating educational programs. The authors also describe the specific data and measurement and analytic procedures that cost analysis evaluation requires. The concepts are then applied in a case study showing a cost analysis of SWPBS. Implications are provided for extending the cost analysis case study into evaluation of cost-effectiveness and/or cost– benefit economic analyses of program success.”

Bowden, A. B., Belfield, C. R., Levin, H. M., Shand, R., Wang, A., & Morales, M. (2015). *A benefit-cost analysis of City Connects*. Columbia University, NY: Center for Benefit-Cost Studies in

Education. Retrieved from <https://static1.squarespace.com/static/583b86882e69cfc61c6c26dc/t/58cfdcba1b631bf52d377cd8/1490017468049/CityConnects.pdf>

*From the abstract:* “This study is an initial investigation of Boston College’s City Connects program, which supports students and schools by evaluating the needs of all students in a school and connecting them to services that are largely provided by community partner organizations. ...

Prior research has shown evidence of effectiveness of City Connects in terms of increased achievement and educational attainment relative to similar schools that have not implemented the program (City Connects Progress Report, 2014; Walsh et al., 2014a; 2014b). These positive effects must be weighed against the program’s costs in a benefit-cost analysis to determine whether the program is a worthwhile social investment. ...

Under the model that is most plausible based on implementation data, the benefit-cost ratio is 3.0 and the net benefits are \$9,280 per student. This result implies that providing the program to a cohort of 100 students over six years would cost society \$457,000 but yield \$1,385,000 in social benefits, for a net benefit of \$928,000. Even under the most conservative assumptions regarding costs and benefits, the program’s benefits exceed its costs.”

Kuo, E., Stoep, A. V., McCauley, E., & Kernic, M. A. (2009). Cost-effectiveness of a school-based emotional health screening program. *Journal of School Health, 79*(6), 277–285. Retrieved from <https://eric.ed.gov/?id=EJ842139>

*From the abstract:* “Background: School-based screening for health conditions can help extend the reach of health services to underserved populations. Screening for mental health conditions is growing in acceptability; however, evidence of cost-effectiveness is lacking. This study assesses costs and effectiveness associated with the Developmental Pathways Screening Program, in which students undergo universal classroom emotional health screening, and positive screens are provided on-site clinical evaluation and referral. Methods: Costs are enumerated for screening and clinical evaluation in terms of labor and overhead and summarized as cost per enrolled student, per positive screen, and per referral. Cost-effectiveness is summarized as cost per student successfully linked to services. School demographics are used to generate a predictive formula for estimating the proportion of students likely to screen positive in a particular school, which can be used to estimate program cost. Results: Screening costs ranged from \$8.88 to \$13.64 per enrolled student, depending on the prevalence of positive screens in a school. Of students who were referred for services, 72% were linked to supportive services within 6 weeks. Cost-effectiveness was estimated to be \$416.90 per successful linkage when 5% of students screened positive, and \$106.09 when 20% screened positive. A formula to estimate the proportion of students screening positive proved accurate to within 5%. Conclusion: Information concerning costs and effectiveness of school-based emotional health screening programs can guide school districts in making decisions concerning resource allocation.”

Noyes, K., Bajorska, A., Fisher, S., Sauer, J., Fagnano, M., & Halterman, J. S. (2013). Cost-effectiveness of the school-based asthma therapy (SBAT) program. *Pediatrics, 131*(3),

e709–e717. Retrieved from

<http://pediatrics.aappublications.org/content/pediatrics/131/3/e709.full.pdf>

*From the abstract:* “Background and Objective: Impoverished urban children suffer disproportionately from asthma and underuse preventive asthma medications. The objective of this study was to examine cost-effectiveness (CE) of the School-Based Asthma Therapy (SBAT) program compared with usual care (UC). Methods: The analysis was based on the SBAT trial, including 525 children aged 3 to 10 years attending urban preschool or elementary school who were randomized to either UC or administration of 1 dose of preventive asthma medication at school by the school nurse each school day. The primary outcome was the mean number of symptom-free days (SFDs). The impact of the intervention on medical costs was estimated by using parent-reported child health services utilization data and average national reimbursement rates. We estimated the cost of running the program using wages for program staff. Productivity costs were estimated by using value of parent lost time due to child illness. CE of the SBAT program compared with UC was evaluated based on the incremental CE ratio. Results: The health benefit of the intervention was equal to ~158 SFD gained per each 30-day period (P, .05) per 100 children. The programmatic expenses summed to an extra \$4822 per 100 children per month. The net saving due to the intervention (reduction in medical costs and parental productivity, and improvement in school attendance) was \$3240, resulting in the incremental cost-savings difference of \$1583 and CE of \$10 per 1 extra SFD gained. Conclusions: The SBAT was effective and cost-effective in reducing symptoms in urban children with asthma compared with other existing programs.”

Rogers, T., & Feller, A. (2016). Parent beliefs and student absences: Large absence-reduction field experiment. *Society for Research on Educational Effectiveness*. Retrieved from <https://eric.ed.gov/?id=ED567510>

*From the abstract:* “School attendance is a robust predictor of course performance, and it is consistently the strongest predictor of high school dropout, even more so than suspensions and test scores. Focusing on getting students to school is an essential part of decreasing high school dropout rates. What is concerning is that up to 20% of students miss essentially a month or more of schooling in a year. Recent work suggests that guardians are unaware of how their student’s attendance compares to that of their classmates; moreover, they often are very miscalibrated in estimating how many days of school their own student has been absent. The objective of the project presented in this study is to motivate parents/guardians to improve student attendance through multiple communications during the school year. The project addresses the following research questions: (1) Does contacting guardians and encouraging them to improve their students’ attendance reduce absences?; (2) Does communicating to guardians the total number of days their student missed reduce absences?; (3) Does communicating to guardians the total number of days their student missed as compared to the absences of a typical student reduce absences?; and (4) Do these interventions also impact the attendance of other students in the household not explicitly mentioned in the mailings? The study involves students and their guardians in all public elementary, middle, and high schools in a major metropolitan school district. This

study incorporated various data sets exported directly from the administrative records of the school district. The data sets included student demographics and enrollment data, guardian contact information, and attendance data. This study identifies an easy-to-implement, extremely cost-effective way to reduce absenteeism. This intervention cost around \$6 per incremental day of attendance it generated. Back-of-the-envelope estimates of the cost per incremental day of attendance from social workers and truancy officers is around \$50-\$100. Two tables are appended.”

Wang, H., Li, T., Siahpush, M., Chen, L. W., & Huberty, J. (2017). Cost-effectiveness of Ready for Recess to promote physical activity in children. *Journal of School Health, 87*(4), 278–285. Abstract retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/josh.12495/full>

*From the abstract:* “Background: Many school-based recess interventions have been shown to be effective in increasing physical activity but their relative efficiency compared to other school-based programs are unknown. This study examined the cost-effectiveness of Ready for Recess, a program designed to increase students' physical activity in 2 elementary schools.

Methods: Standard cost-effectiveness analysis method was used from a program's perspective for this study. Program effectiveness was measured as total metabolic equivalent (MET) hours gained. Program costs included equipment, training, and personnel costs during the 1-year intervention. The cost-effectiveness was measured as the ratio of program costs to total MET-hours gained.

Results: Ready for Recess cost \$27,643.97 for the 2 schools in the first year of implementation. Physical activity increased by 1.8 MET-hours per day per student. Approximately 32 cents were spent on Ready for Recess to produce an additional MET-hour per student per school day in the 2008–2009 school year.

Conclusions: Ready for Recess was cost-effective in its first year of implementation using 35 cents as a benchmark and it was cost-effective relative to other school-based physical activity interventions. The program may be more cost-effective if implemented for a longer time and on a larger scale.”

Wang, L. Y., Vernon-Smiley, M., Gapinski, M. A., Desisto, M., Maughan, E., & Sheetz, A. (2014). Cost-benefit study of school nursing services. *JAMA pediatrics, 168*(7), 642–648. Retrieved from <http://jamanetwork.com/journals/jamapediatrics/fullarticle/1872779>

*From the abstract:* “Importance: In recent years, across the United States, many school districts have cut on-site delivery of health services by eliminating or reducing services provided by qualified school nurses. Providing cost-benefit information will help policy makers and decision makers better understand the value of school nursing services.

Objective: To conduct a case study of the Massachusetts Essential School Health Services (ESHS) program to demonstrate the cost-benefit of school health services delivered by full-time registered nurses.

**Design, Setting, and Participants:** Standard cost-benefit analysis methods were used to estimate the costs and benefits of the ESHS program compared with a scenario involving no school nursing service. Data from the ESHS program report and other published studies were used. A total of 477163 students in 933 Massachusetts ESHS schools in 78 school districts received school health services during the 2009–2010 school year.

**Interventions:** School health services provided by full-time registered nurses.

**Main Outcomes and Measures:** Costs of nurse staffing and medical supplies incurred by 78 ESHS districts during the 2009–2010 school year were measured as program costs. Program benefits were measured as savings in medical procedure costs, teachers' productivity loss costs associated with addressing student health issues, and parents' productivity loss costs associated with student early dismissal and medication administration. Net benefits and benefit-cost ratio were calculated. All costs and benefits were in 2009 US dollars.

**Results:** During the 2009–2010 school year, at a cost of \$79.0 million, the ESHS program prevented an estimated \$20.0 million in medical care costs, \$28.1 million in parents' productivity loss, and \$129.1 million in teachers' productivity loss. As a result, the program generated a net benefit of \$98.2 million to society. For every dollar invested in the program, society would gain \$2.20. Eighty-nine percent of simulation trials resulted in a net benefit.

**Conclusions and Relevance:** The results of this study demonstrated that school nursing services provided in the Massachusetts ESHS schools were a cost-beneficial investment of public money, warranting careful consideration by policy makers and decision makers when resource allocation decisions are made about school nursing positions...."

### **Additional Organizations to Consult**

Center for Benefit-Cost Studies in Education (CBCSE) at Teachers College, Columbia University:  
<http://cbcse.org/>

*From the website:* "CBCSE's mission is to improve the efficiency with which public and private resources are employed in education. We conduct research to determine the costs of educational programs as well as the economic value of program impacts in order to encourage educators, evaluators and policymakers to consider these factors in conjunction with program effectiveness in addressing educational goals. By considering both costs and effectiveness or benefits of educational programs, policymakers can optimize resource allocation and enhance productivity in education."

### **Methods**

#### **Keywords and Search Strings**

The following keywords and search strings were used to search the reference databases and other sources:

- Cost-effectiveness analysis OR "cost effectiveness analysis"
- Cost-benefit analysis OR "cost benefit analysis"

- (Cost-effectiveness OR “cost effectiveness”) AND non-academic supports
- (Cost-benefit OR “cost benefit”) AND non-academic supports
- (Cost-effectiveness OR “cost effectiveness”) AND school supportive service\*
- (Cost-benefit OR “cost benefit”) AND school supportive service\*
- (Cost-effectiveness OR “cost-effectiveness”) AND family engagement AND school
- (Cost-benefit OR “cost-benefit”) AND family engagement AND school
- (Cost-effectiveness OR “cost effectiveness”) AND health AND school
- (Cost-benefit OR “cost benefit”) AND health AND school
- Cost-effectiveness OR “cost effectiveness”) AND “chronic absenteeism”
- (Cost-benefit OR “cost benefit”) AND “chronic absenteeism”
- (Cost-effectiveness OR “cost effectiveness”) AND absence\* AND school
- (Cost-benefit OR “cost benefit”) AND absence\* AND school
- (Cost-effectiveness OR “cost effectiveness”) AND discipline behavior AND school
- (Cost-benefit OR “cost benefit”) AND discipline behavior AND school
- (Cost-effectiveness OR “cost effectiveness”) AND “positive behavior support”
- (Cost-benefit OR “cost benefit”) AND “positive behavior support”
- (Cost-effectiveness OR “cost effectiveness”) AND “school climate”
- (Cost-benefit OR “cost benefit”) AND “school climate”

## Databases and Resources

We searched ERIC, a free online library of more than 1.6 million citations of education research sponsored by the Institute of Education Sciences (IES), for relevant resources. Additionally, we searched the academic database ProQuest, Google Scholar, and the commercial search engine Google.

## Reference Search and Selection Criteria

In reviewing resources, Reference Desk researchers consider—among other things—these four factors:

- Date of the publication: Searches cover the most current information (i.e., within the last ten years), except in the case of nationally known seminal resources.
- Search priorities of reference sources: Search priorities include IES, nationally funded, and certain other vetted sources known for strict attention to research protocols. Applicable resources must be publicly available online and in English.
- Methodology: The following methodological priorities/considerations guide the review and selection of the references: (a) study types—randomized controlled trials, quasi experiments, surveys, descriptive data analyses, literature reviews, policy briefs, etc., generally in this order; (b) target population, samples (representativeness of the target population, sample size, volunteered or randomly selected), study duration, etc.; (c) limitations, generalizability of the findings and conclusions, etc.

- Existing knowledge base: Vetted resources (e.g., peer-reviewed research journals) are the primary focus, but the research base is occasionally slim or nonexistent. In those cases, the best resources available may include, for example, reports, white papers, guides, reviews in non-peer-reviewed journals, newspaper articles, interviews with content specialists, and organization websites.

Resources included in this document were last accessed on (September 12, 2017). URLs, descriptions, and content included here were current at that time.

This memorandum is one in a series of quick-turnaround responses to specific questions posed by education stakeholders in the Appalachia region (Kentucky, Tennessee, Virginia, and West Virginia), which is served by the Regional Educational Laboratory Appalachia (REL AP) at SRI International. This Ask-A-REL response was developed by REL AP under Contract ED-IES-17-C-0004 from the U.S. Department of Education, Institute of Education Sciences, administered by SRI International. The content does not necessarily reflect the views or policies of IES or the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.